(19) JAPANESE GOVERNMENT PATENT OFFICE

(11) Publication number: **63003463 A**

PATENT ABSTRACTS OF JAPAN

(21) Application number: **61147381**

(22) Application date: **24.06.86**

(51) Intl. Cl.: **H01L 29/78** H01L 21/205 H01L 27/12

(30) Priority:

(43) Date of application publication: **08.01.88**

(84) Designated contracting states:

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(54) MANUFACTURE OF THIN FILM TRANSISTOR

(57) Abstract:

PURPOSE: To perform stable operation characterized by high mobility, by using a silicon film made by thermal CVD of high-order silane

such as trisilane or higher as a channel semiconductor film of a thin film transistor.

CONSTITUTION: On an insulating substrate 1, a gate 2 comprising Ni, W, Mo and the like is formed by evaporation, sputtering and the like. A gate insulating film 3 such as a silicon oxide film and silicon nitride film is laminated by a CVD method and the like on the gate 2. A silicon film 4 of high-order silane such as trisilane or higher is formed by a thermal CVD method on the film 3. A source 5 and a drain 6, which have doublelayer structure of a P-or N-type low resistance semiconductor film and a metal film, are formed. An inverted staggered type thin film transistor is formed. The silicon film 4 is formed as follows: the substrate is heated to a temperature of about 400°C; the high order silane such as the trisilane or higher is introduced in a chamber 7; and the film 4 is formed on the surface of the substrate by thermal decomposition reaction on the substrate.